

ABSTRACT

The object is to provide a nonaqueous-electrolyte battery having high charge/discharge efficiency and excellent high-rate performance. This subject is accomplished by using a nonaqueous electrolyte which comprises an organic solvent and a lithium salt dissolved therein and is characterized by containing at least one quaternary ammonium salt in an amount of 0.06 mol/L or larger and 0.5 mol/L or smaller. This effect is thought to be attributable to the following mechanism: in a relatively early stage (stage in which the negative-electrode potential is relatively noble) in a first charge step, a satisfactory protective coating film is formed on the negative electrode by the action of the quaternary ammonium salt and, hence, the organic solvent employed in the nonaqueous electrolyte is inhibited from decomposing.